



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

**RBW6405G02131-
3G-1**

Job Sheet 190638



Part No: RBW6405G02131-3G-1

Job Qty: 6 pcs

Part Name: Bolt



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 2/12/19

Job Tracking No: SIOP

Due Date: 3/12/19

Created By: Dara Macdonald

Type: Stock

Description:

Note: DWG RBW6405G02131-3G REV D SHEET 2 IPP Rev.A 17.08.29 New issue DP Verify DD IPP Rev B 17.11.14 Rev B DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
					Setup Hrs	Run Hrs		
110	SL-154 - 1	4 pcs	3/12/19	3/12/19	0.00	2.00	SL-154 - 1	MJP 19/03/04
120	QC 2	4 pcs	3/12/19	3/12/19	0.00	0.00	QC 2 - 1	
							QC 2 - 12	
							QC 2 - 14	
							QC 2 - 17	
							QC 2 - 19	
							QC 2 - 2	
							QC 2 - 20	
							QC 2 - 22	
							QC 2 - 23	
							QC 2 - 25	
							QC 2 - 32	
							QC 2 - 33	MJP 19/03/04
							QC 2 - 35	
							QC 2 - 39	
							QC 2 - 4	
							QC 2 - 40	
							QC 2 - 44	
							QC 2 - 45	
							QC 2 - 48	
							QC 2 - 49	
							QC 2 - 50	
							QC 2 - 51	
							QC 2 - 52	
							QC 2 - 54	
							QC 2 - 56	
							QC 2 - 57	
							QC 2 - 62	
							QC 2 - 63	
							QC 2 - 8	



Container No: S158538



Part: RBW6405G02131-3G-1

Job No: 190638

Serial No/Batch: S158538

Revision: D

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 03/13/19

Maive

214

QC 2 - 66	Plex 2/12/19 1:16 PM Dart,Macdonald,Dart			
QC 2 - 64		0.00 0.00	3/12/19	4 pcs
QC 8 - 12				
QC 8 - 14				
QC 8 - 17				
QC 8 - 20				
QC 8 - 25				
QC 8 - 3				
QC 8 - 32				
QC 8 - 33				
QC 8 - 35				
QC 8 - 39				
QC 8 - 4				
QC 8 - 44				
QC 8 - 45				
QC 8 - 49				
QC 8 - 58				
QC 8 - 8				
QC 8 - 9				
QC 8 - 68				
QC 8 - 67				
QC 8 - 1 (A)				
QC 8 - 47				
QC 5 - 10		0.00 0.00	3/12/19	4 pcs
QC 5 - 12				
QC 5 - 17				
QC 5 - 18				
QC 5 - 19				
QC 5 - 22				
QC 5 - 24				
QC 5 - 3				
QC 5 - 42				
QC 5 - 43				
QC 5 - 49				
QC 5 - 51				
QC 5 - 58				
QC 5 - 68				
QC 5 - 9				
QC 5 - 50				
QC 5 - 30				
GRO002-VC	10		3/12/19	4 pcs
Packaging 2 - 1 - B4B		0.00 0.00	3/12/19	4 pcs
Packaging 2 - 2 - B4B				
Packaging 2 - 3 - B4B				
Packaging 2 - 5 - B4B				
Packaging 2 - 4 - B4B				
Packaging 2 - 6 - B4B				
Packaging 2 - 7 - B4B				
Packaging 2 - 8 - B4B				
Packaging 2 - 9 - B4B				
Packaging 2 - 10 - B4B				
Packaging 2 - 11 - B4B				
Packaging 2 - 12 - B4B				
Packaging 2 - 13 - B4B				
Packaging 2 - 14 - B4B				
Packaging 2 - 15 - B4B				
Packaging 2 - 16 - B4B				
Packaging 2 - 17 - B4B				
Packaging 2 - 18 - B4B				
Packaging 2 - 19 - B4B				
190 Packaging 2-1 - Receive - B4B		0.00 0.00	3/12/19	4 pcs
180 Outsource - 13 - Zinc Plating				
140 QC 5				
130 QC 8				

6 pcs of

Not required

MAR 13 2019

03/07/2019 PL

19-03-05

				Packaging 2 - 20 - B4B	2/12/19 1:16 PM Dart.Macdonald.Dara		
				Packaging 2 - 21 - B4B			
				Packaging 2 - 22 - B4B			
				Packaging 2 - 23 - B4B			
				Packaging 2 - 24 - B4B			
				Packaging 2 - 25 - B4B			
				Packaging 2 - 26 - B4B			
				Packaging 2 - 27 - B4B			
				Packaging 2 - 28 - B4B			
				Packaging 2 - 29 - B4B			
				Packaging 2 - 30 - B4B			
				Packaging 2 - 31 - B4B			
				Packaging 2 - 32 - B4B			
				Packaging 2 - 33 - B4B			
				Packaging 2 - 34 - B4B			
				Packaging 2 - 35 - B4B			
				Packaging 2 - 36 - B4B			
200	QC 6	4 pcs	3/12/19	0.00	0.00	QC 6 - 42	
						QC 6 - 9	DAS
						QC 6 - 68	MAR 13 201968
						QC 6 - 61	9-89
210	Packaging 3-1 - Stock - B4B	4 pcs	3/12/19	0.00	0.00	Packaging 3 - 1 - B4B	
						Packaging 3 - 2 - B4B	
						Packaging 3 - 3 - B4B	
						Packaging 3 - 4 - B4B	
						Packaging 3 - 5 - B4B	
						Packaging 3 - 6 - B4B	
						Packaging 3 - 7 - B4B	
						Packaging 3 - 8 - B4B	
						Packaging 3 - 9 - B4B	
						Packaging 3 - 10 - B4B	
						Packaging 3 - 11 - B4B	
						Packaging 3 - 12 - B4B	
						Packaging 3 - 13 - B4B	
						Packaging 3 - 14 - B4B	
						Packaging 3 - 15 - B4B	
						Packaging 3 - 16 - B4B	
						Packaging 3 - 17 - B4B	
						Packaging 3 - 18 - B4B	
						Packaging 3 - 19 - B4B	
						Packaging 3 - 20 - B4B	
						Packaging 3 - 21 - B4B	
						Packaging 3 - 22 - B4B	
						Packaging 3 - 23 - B4B	
						Packaging 3 - 24 - B4B	
						Packaging 3 - 25 - B4B	
						Packaging 3 - 26 - B4B	
						Packaging 3 - 27 - B4B	
						Packaging 3 - 28 - B4B	
						Packaging 3 - 29 - B4B	
						Packaging 3 - 30 - B4B	
						Packaging 3 - 31 - B4B	
						Packaging 3 - 32 - B4B	
						Packaging 3 - 33 - B4B	
						Packaging 3 - 34 - B4B	
						Packaging 3 - 35 - B4B	
						Packaging 3 - 36 - B4B	
220	QC 21 - SA	4 pcs	3/12/19	0.00	0.00	QC 21 - SA - 21	DAS
						QC 21 - SA - 70	21
						QC 21 - SA - 53	9-88 MAR 15 2019

GA097

Part Op 110 - MORI SL-154 LATHE - 1-Machine as per DWG. FB623 FOLIO REV: Plex 2/12/19 1:16 PM Dart.Macdonald.Dara
Descriptions: Debur

120 - QC2- Inspect parts off machine FAI/FAIB

130 - QC8- Inspect parts - second check

140 - QC5- Inspect part completeness to step on W/O

180 - -Issue P/O to Groupe Altech: P/O _____ -Zinc plate, ASTM B633 TYPE 1 SC2 - Certificate of Conformity is required

190 - Receive & Inspect for Damage & Mat'l Certs

200 - QC6- All purchased or subcontracted products

210 - Identify as per dwg & Stock Location: _____

220 - QC21- Final Inspection - Work Order Release

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
MT-4140QT-R0.750	AISI 4140 Quenched & Tempered Steel Round Bar 0.750" Dia.	2.4000 ft (.6 ea)	110-SL-154 - 1	<u>5128382</u>

MT-4140 QT- R0.875

Job Allocations

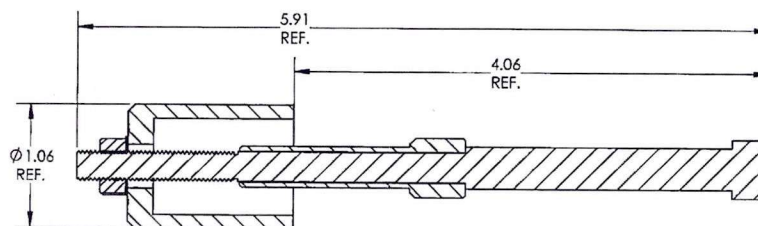
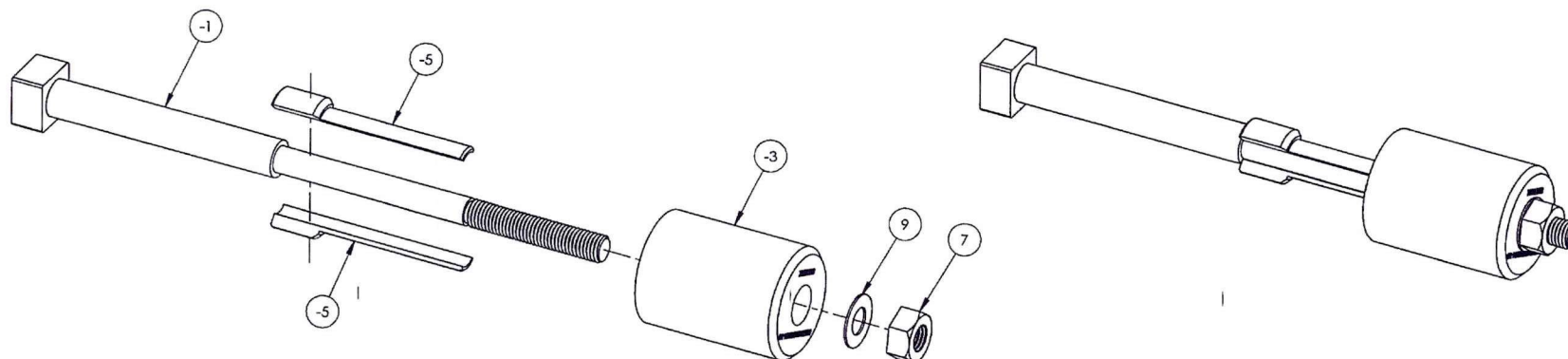
Operation	Component Part	Required	Inventory	Allocated
110-SL-154 - 1	MT-4140QT-R0.750	2	5	0

Part Specifications

Specifications could not be found.

Plex 2/12/19 1:16 PM Dart.Macdonald.Dara

ITEM #	QTY	PART #	TITLE	PG	REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
-1	1	RBW6405G02131-3G-1	BOLT	2	1	CH'D TITLEBLOCK WAS RED BARN IS DART. -1 CH'D DIM WAS 4X.03 X 45" IS 4X R.34. -5 ADDED DIM (.338), CH'D DIM WAS 1.430 IS 1.45.	14-0205	10/31/2014	DJN	JAG
-3	1	RBW6405G02131-3G-3	BELL	3						
-5	2	RBW6405G02131-3G-5	QUARTER BELL	4	2	-1 AND -5 CH'D MATERIAL CALL OUT WAS 4140 Q&T IS 4140 Q&T / 4142 Q&T. -5 ADDED PART MARK FOR PAIRS NOTE.	15-0294	9/10/2015	RJC	JAG
7	1	McMaster#94191A150	HEX NUT 1/4"-28 UNF GRADE 8	-	3	-1 CH'D MAT'L WAS 4140 Q&T/4142 Q&T IS 4140/4142. ADDED HEAT TREAT RC 28-34. CH'D FINISH WAS CAD PLATE YELLOW QQ-P-416 TYPE II CLASS II IS ZINC PLATE ASTM B633 TYPE I SC2. -3 DELETED DIMS (.220), (2X .118). CH'D DIM WAS 1.12 IS 1.20. -5 CH'D MAT'L WAS 4140 Q&T/4142 Q&T IS 4140/4142. ADDED HEAT TREAT RC 28-34. CH'D FINISH WAS CAD PLATE YELLOW QQ-P-416 TYPE II CLASS II IS ZINC PLATE ASTM B633 TYPE I SC2. DELETED DIM 42".	17-0161	6/23/2017	DPD	JAG
9	1	McMaster#95229A420	FLAT WASHER 1/4"	-	D	-1 & -5 MATERIAL 4140-4142 CHANGED FOR 4140-4142 Q&T Rc ADDED, TEMPLATE UPDATED	17-717	17.10.19	VM	WM



SECTION A-A

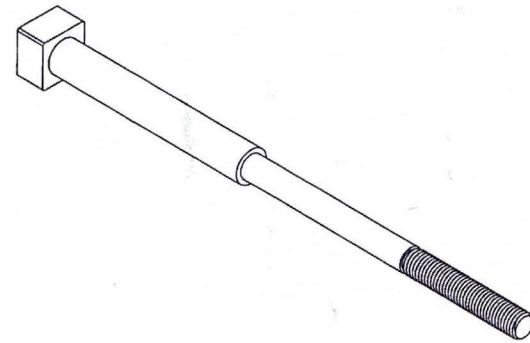
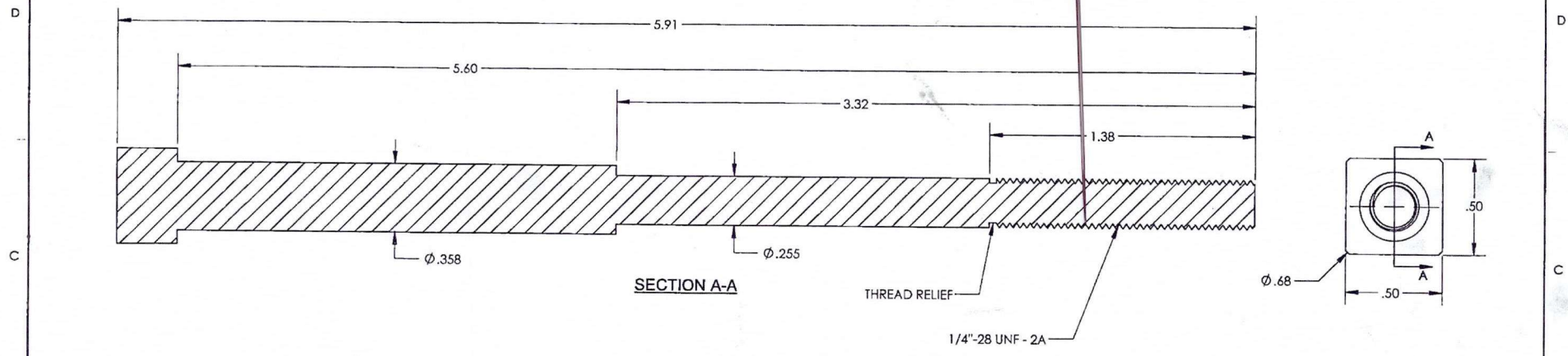
NOTES:

- 1) MATERIAL: N/A
- 2) HEAT TREAT: N/A
- 3) FINISH: N/A
- 4) SPEC: N/A
- 5) BREAK ALL SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) REF AGUSTA T/N: 3G6405G02131

RBW6405G02131-3G TAIL ROTOR BLADE DAMPER ATTACHMENT BUSHING REMOVAL

DART AEROSPACE Hawthorn, Ontario, Canada		TITLE	
		TAIL ROTOR BLADE DAMPER ATTACHMENT BUSHING REMOVAL	
DWG NO.		REV	
RBW6405G02131-3G		D	
DESIGN BY:	VM 10/19/2017	XXX ± .005	FRACTIONS ± 1/8
DRAWN BY:	VM 10/30/2017	XX ± .01	ANGLES ± .5°
CHECKED:	SAC 10/30/2017	1. DIMENSIONS ARE IN INCHES	SURFACES = 125
MFG. APPR:	DD 10/31/2017	UNLESS OTHERWISE SPECIFIED	
APPROVED:	WWM 11/02/2017	2. INTERPRET DIM AND TOL PER ASME Y14.5M-2009	
DATE:	10/30/2017	3. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE:	NTS	WEIGHT:	N/A
		SHEET 1 OF 4	
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8 7 6 5 4 2 1



RBW6405G02131-3G-1 BOLT

- NOTES:**
 1) MATERIAL: AISI 4140/4142 Q & T
 2) HEAT TREAT: 28-34 Rc
 3) FINISH: ZINC PLATE
 4) SPEC: ASTM B633 TYPE I, SC 2
 5) BREAK ALL SHARP EDGES .015 x 45° OR .015R
 6) IDENTIFICATION: N/A

DART AEROSPACE Hawkesbury, Ontario, Canada			
TITLE: BOLT			
DWG NO. RBW6405G02131-3G-1		REV D	
DESIGN BY: VM 10/19/2017	XXX ± .003 FRACTIONS 1/8	1. DIMENSIONS ARE IN INCHES 2. INTERPRET DIM AND TOL PER ASME Y14.5M-2009 3. DIMENSIONAL LIMITS APPLY AFTER PLATING	
DRAWN BY: VM 10/30/2017	XX ± .01 ANGLES 2.5°		
CHECKED: SAC 10/30/2017	X ± .1 SURFACES = 12.5		
MFG. APPR: DD 10/31/2017			
APPROVED: WM 11/02/2017			
DATE: 10/30/2017			
SCALE: NTS	WEIGHT: 0.132 LBS	SHEET 2 OF 4	
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8 7 6 5 4 3 2 1

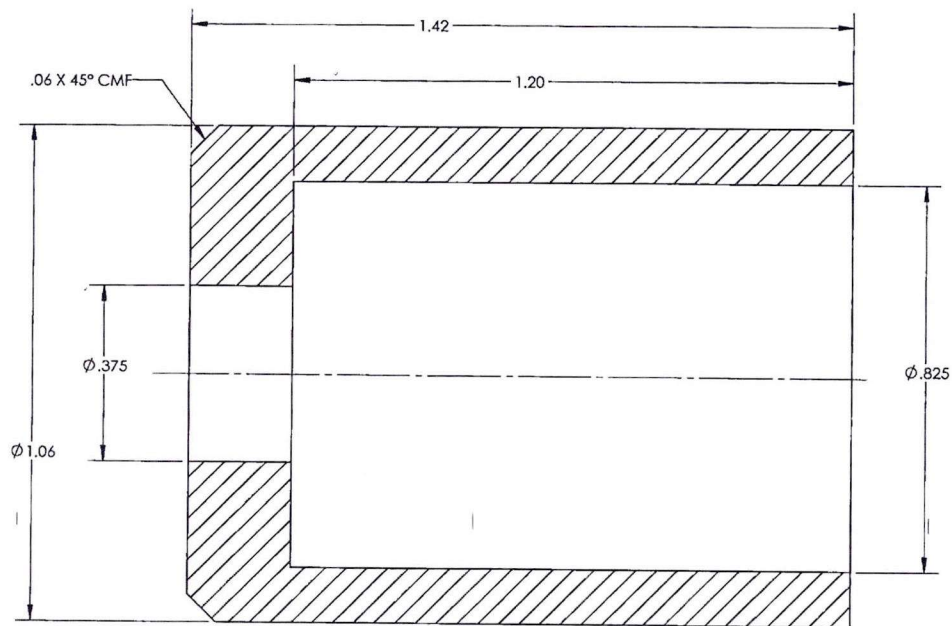
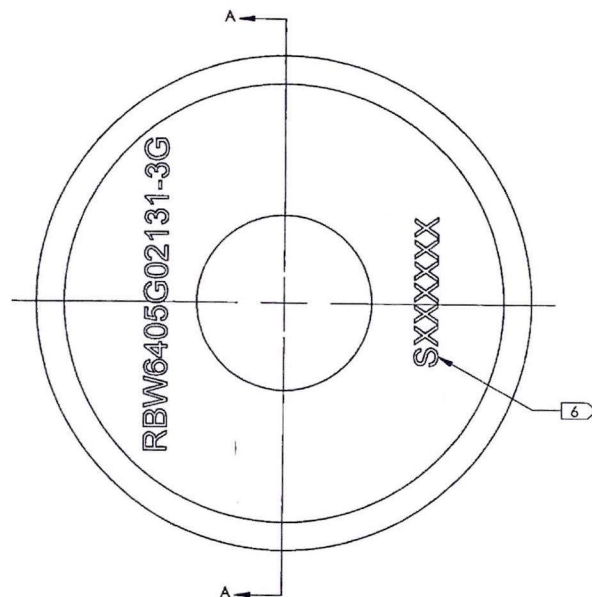
8 7 6 5 4 3 2 1

D

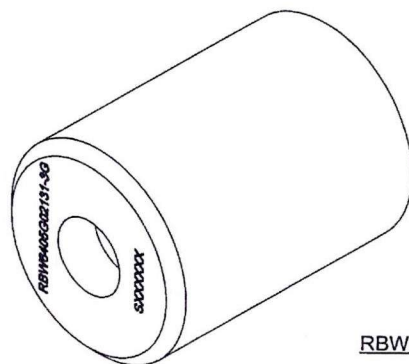
C

B

A



SECTION A-A



RBW6405G02131-3G-3 BELL

NOTES:

- 1) MATERIAL: 6061-T6
- 2) HEAT TREAT: N/A
- 3) FINISH: CLEAR ANODIZE
- 4) SPEC: MIL-A-8625, TYPE II, CLASS 1; WATER SEALANT
- 5) BREAK ALL SHARP EDGES .015 X 45° OR .015R
- 6) IDENTIFICATION: MACHINE ENGRAVE PER CAD FILE LATEST REV T/N & S/N, 0.010" DEPTH

8 7 6 5 4 3 2 1

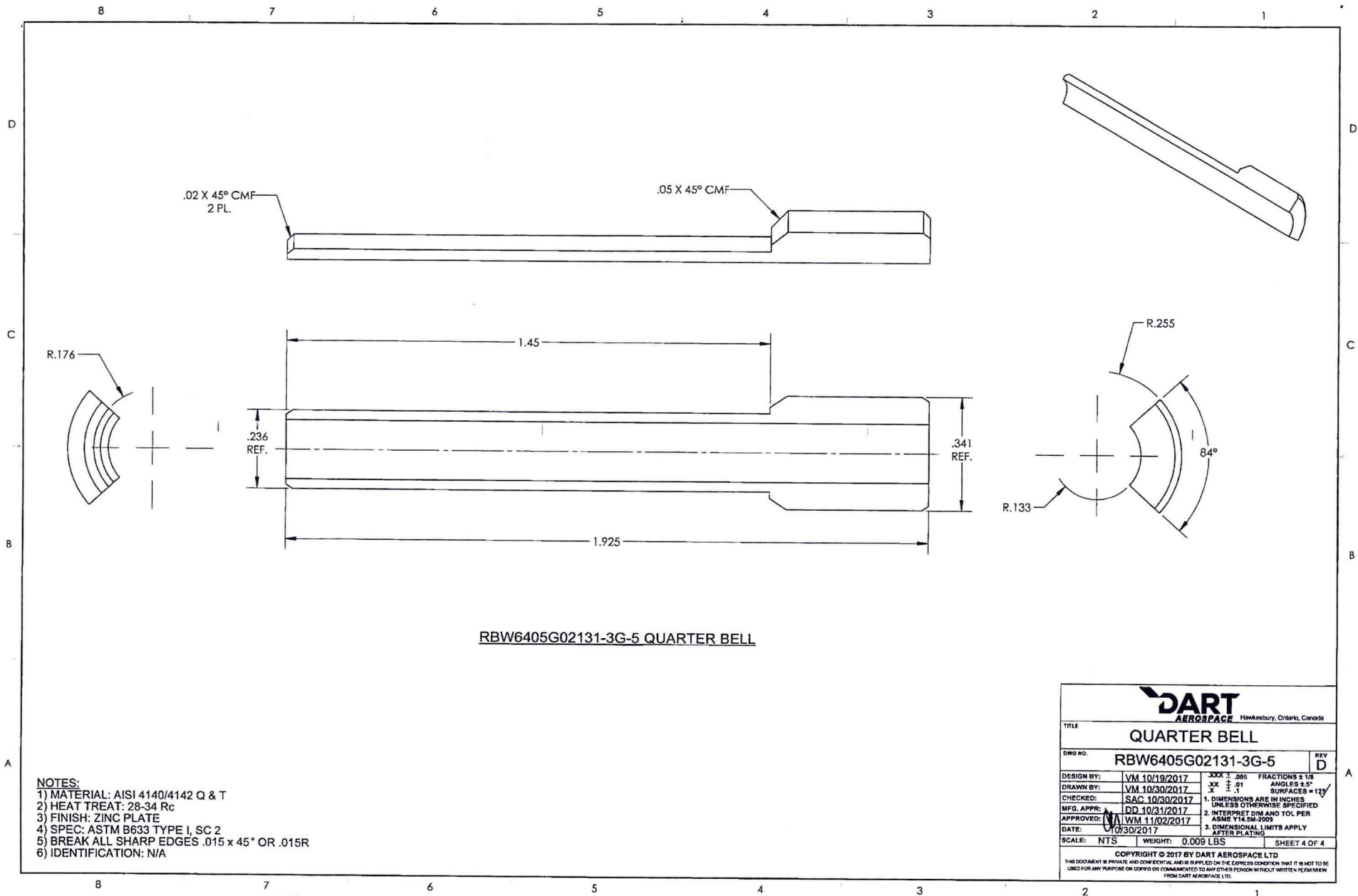
D

C

B

A

DART AEROSPACE Howdensbury, Ontario, Canada	
BELL	
DWG NO.	REV
RBW6405G02131-3G-3	D
DESIGN BY:	DATE
VM 10/19/2017	10/30/2017
DRAWN BY:	DATE
VM 10/30/2017	10/30/2017
CHECKED:	DATE
SAC 10/30/2017	10/30/2017
MFG. APPR:	DATE
W 10/30/2017	10/30/2017
APPROVED:	DATE
W 10/30/2017	10/30/2017
SCALE:	WEIGHT:
NTS	0.057 LBS
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SHEET 3 OF 4	



Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QS1042)	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor		
			QC / QA Coordinator		
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					



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CANADA
TEL.: 1 813 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S158538



Part: RBW6405G02131-3G-1

Job No: 190638

Serial No/Batch: S158538

Revision: D

Inspector:

Exp Date:

Instructions:

Date: 03/04/19



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO042818



Supplier: GRO002-VC
Group Altech
2455 Halpern
St Laurent
QC
H4S 1N9 Canada
Phone: 514-335-3666
Fax: 514-335-3868

PO No: PO042818
PO Date: 3/6/19
Due Date: 3/13/19
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pynt Terms: Net 60
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	188396	RBW6305G11151-3G	Pin, Main Rotor Servoactuator Fitting Installation -Issue P/O to GROUPE ALTECH: P/O -Zinc plate, ASTM B633 TYPE 2 SC2 -Color yellow -Material type; 1018 -Certificate of Conformity is required	Firmed - X12		3/13/19	12 pcs	0 pcs	12 pcs	\$7.50/pcs	\$90.00
MAR 13 2019 DP											
Line Item Note **Need parts back for March 13,2019**											
2	190639	RBW6405G02131-3G-5	Quarter Bell -Issue P/O to Groupe Altech: P/O -Zinc plate, ASTM B633 TYPE 1 SC2 - Certificate of Conformity is required	Firmed - X12		3/13/19	12 pcs	0 pcs	12 pcs	\$11.25/pcs	\$135.00
MAR 13 2019 DP											
Line Item Note **Need parts back for March 13,2019**											



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO042818



Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3	190638	RBW6405G02131-3G-1	Bolt -Issue P/O to Groupe Altech: P/O -Zinc plate, ASTM B633 TYPE 1 SC2 - Certificate of Conformity is required	Firmed -		3/13/19	6 pcs	0 pcs	6 pcs	\$3.00/pcs	\$18.00

MAR 13 2019

OP

DAS
68
9-89

Line Item Note **Need parts back for March 13,2019**

Grand Total: \$243.00

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

[Handwritten signature]

Plex 3/8/19 10:24 AM dart.Lussier.Patrick



Certificat de Conformité / Certificate of Compliance



2455, Rue Halpern | Saint-Laurent | Québec | H4S 1N9
 Tel: 514-335-3666 Fax: 514-335-3868
 www.groupaltech.com

Bon de Livraison / Packing Slip

017480- 1

Livré à / Ship to

DART AEROSPACE LTD

1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA

Tel.: 613-632-5200 Fax.:

Client / Customer:

DART AEROSPACE LTD

1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA

BUYER:

Date expédition Ship date		Créé Par Generated By	Transport / No de Compte Courier / Acc. No.	Bon de commande Client Customer Purchase Order No.				
11-Mar-2019		Shankar Anand		PO042818				
#Ligne Line#	No. de Série / # Pièce Part Number /Line Item Details Job # / Ref #	Description pièce(s)	CATG. U/M	Comm. /Ordered	Exp/ Shipped	Qté NC/ NC Qty	Qté Scrap/	À venir/ Back Order
1	RBW6305G11151-3G Rev.	RBW6305G11151-3G 01 -ZINC-YELLOW [ZINC YELLOW] OLD YELLOW CHROMATE, 96 hours ASTM B633 TYPE 2 SC2	ZINC CH	12	12	0	0	0
2	RBW6405G02131-3G-5 Rev.	QUARTER BELL 01 -ZINC-CLEAR TRI [ZINC CLEAR TRIVALENT] SPÉC: ASTM B633 TYPE 1 SC2 ***	ZINC CH	12	12	0	0	0
3	RBW6405G02131-3G-1 Rev.	BOLT 01 -ZINC-CLEAR TRI [ZINC CLEAR TRIVALENT] SPÉC: ASTM B633 TYPE 1 SC2 ***	ZINC CH	6	6	0	0	0

DAS
68
9-89

Notes Additionnelles / Additional Notes

3 Box

Epaisseur réelle
Actual Thickness

Inspecteur Qualité
Quality Inspector

Réçu par
Received By

Nous certifions que les pièces énumérées ci-dessus ont été traitées en conformité avec votre commande et vos spécifications et rencontrent les exigences.
 Notre responsabilité financière et légale ne sera pas supérieure au montant de la facture issue.

We hereby certify that the parts listed above have been process in accordance with your purchase order and specifications and are in conformance with your requirements.
 Our financial and legal responsibility will not be higher than the amount of invoice.